**TYPICAL SECTION** 

# **NOTES**

- 1. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED.
- 2. HALF DEPTH, 3/8" x 1-1/2", EXPANSION JOINTS SHALL BE PLACED ON 15-FOOT CENTERS.
- 3. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED ADJACENT TO CATCH BASINS, INLETS AND AT POINTS OF TANGENCY ON STREETS, ALLEY AND DRIVEWAY RETURNS. MAXIMUM SPACING SHALL BE 30 FEET. PRE-MOLDED JOINT FILLER SHALL BE 3/8" WIDE.
- 4. ALL JOINTS SHALL BE CLEAN AND EDGED.
- CONCRETE SHALL BE COMMERCIAL MIX AS CALLED OUT IN WSDOT STANDARD SPECIFICATIONS.
- STEEL FORMS MUST BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS.
- 7. FINISH SHALL BE LIGHT BROOM FINISH.
- THE FINISHED CURB SHALL BE SPRAYED WITH A TRANSPARENT CURING COMPOUND AND COVERED BY WATERPROOF PAPER OR PLASTIC MEMBRANE IN THE EVENT OF RAIN OR OTHER UNSUITABLE WEATHER. CURING TIME SHALL BE A MINIMUM OF 72 HOURS.
- 9. ALL CURB AND GUTTER SHALL BE PLACED ON A MIN OF 4" OF CRUSHED SURFACING BASE COURSE.
- 10. MATCH ROADWAY CROSS SLOPE EXCEPT AT ADA RAMPS WHERE THE MAXIMUM SLOPE SHALL BE 2%.



**PUBLIC WORKS DEPARTMENT** 

ty Engineer Section Manager CAD Manager Drawn By
TOM HOOD DAN ENRICO PAUL WILHELM WRB

TYPE A-1 **CEMENT CONCRETE CURB & GUTTER** 

307

05/06/2022

**INDUSTRIAL USE ONLY** 

## **NOTES**

- 1. ROLLED CURB AND GUTTER MAY ONLY BE USED IN HIGHLY INDUSTRIALIZED AREAS AND ONLY WITH WRITTEN APPROVAL OF THE CITY ENGINEER.
- 2. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED.
- 3. HALF DEPTH, 3/8" x 1-1/2", EXPANSION JOINTS SHALL BE PLACED ON 15-FOOT CENTERS.
- 4. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED ADJACENT TO CATCH BASINS, INLETS AND AT POINTS OF TANGENCY ON STREETS, ALLEY AND DRIVEWAY RETURNS. MAXIMUM SPACING SHALL BE 30 FEET. PRE-MOLDED JOINT FILLER SHALL BE 3/8" WIDE.
- ALL JOINTS SHALL BE CLEANED AND EDGED.
- 6. CONCRETE SHALL BE COMMERCIAL MIX AS CALLED OUT IN WSDOT STANDARD SPECIFICATIONS.
- 7. STEEL FORMS ONLY MAY BE USED ON TANGENT SECTIONS, WOOD FORMS MAY BE USED ON CURVED SECTIONS.
- FINISH SHALL BE LIGHT BROOM FINISH.
- THE FINISHED CURB SHALL BE SPRAYED WITH A TRANSPARENT CURING COMPOUND AND COVERED BY WATERPROOF PAPER OR PLASTIC MEMBRANE IN THE EVENT OF RAIN OR OTHER UNSUITABLE WEATHER. CURING TIME SHALL BE A MINIMUM OF 72 HOURS.
- ALL SIDEWALKS POURED BEHIND ROLL CURB IN INDUSTRIAL APPLICATIONS SHALL BE 6" MIN THICK OVER 4" MIN OF CRUSHED SURFACING BASE COURSE WITH TOP OF ROCK COMPACTED TO 95% OF MAXIMUM DENSITY.
- 10. MATCH ROADWAY CROSS SLOPE EXCEPT AT ADA RAMPS WHERE THE MAXIMUM SLOPE SHALL BE 2%.

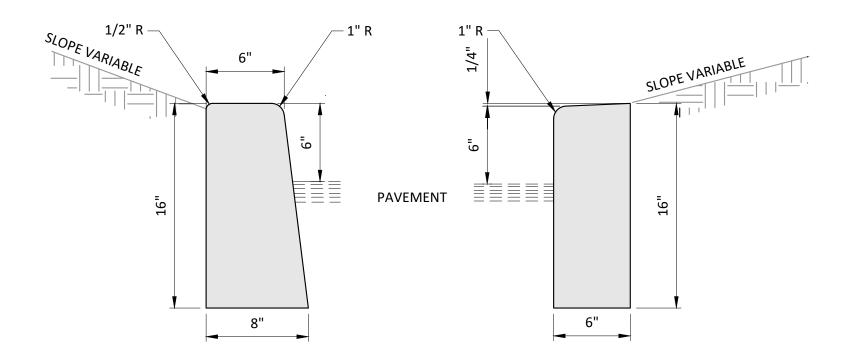


**PUBLIC WORKS DEPARTMENT** 

ity Engineer Section Manager CAD Manager DAN ENRICO PAUL WILHELM WRB

O5/06/2022

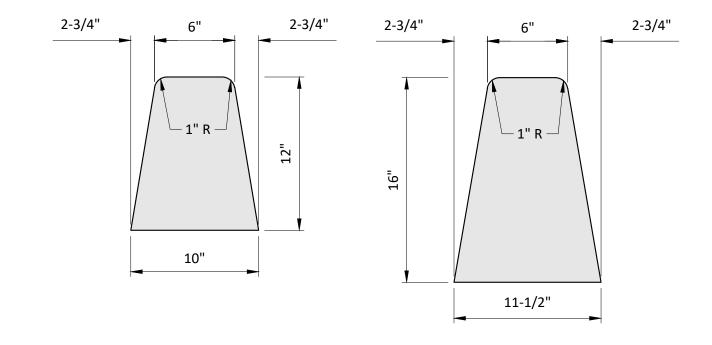
**ROLLED CURB CEMENT CONCRETE CURB & GUTTER** 



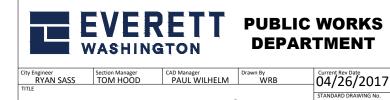
TYPE E-1 CURB

TYPE E-3 CURB

TYPE E-2 CURB

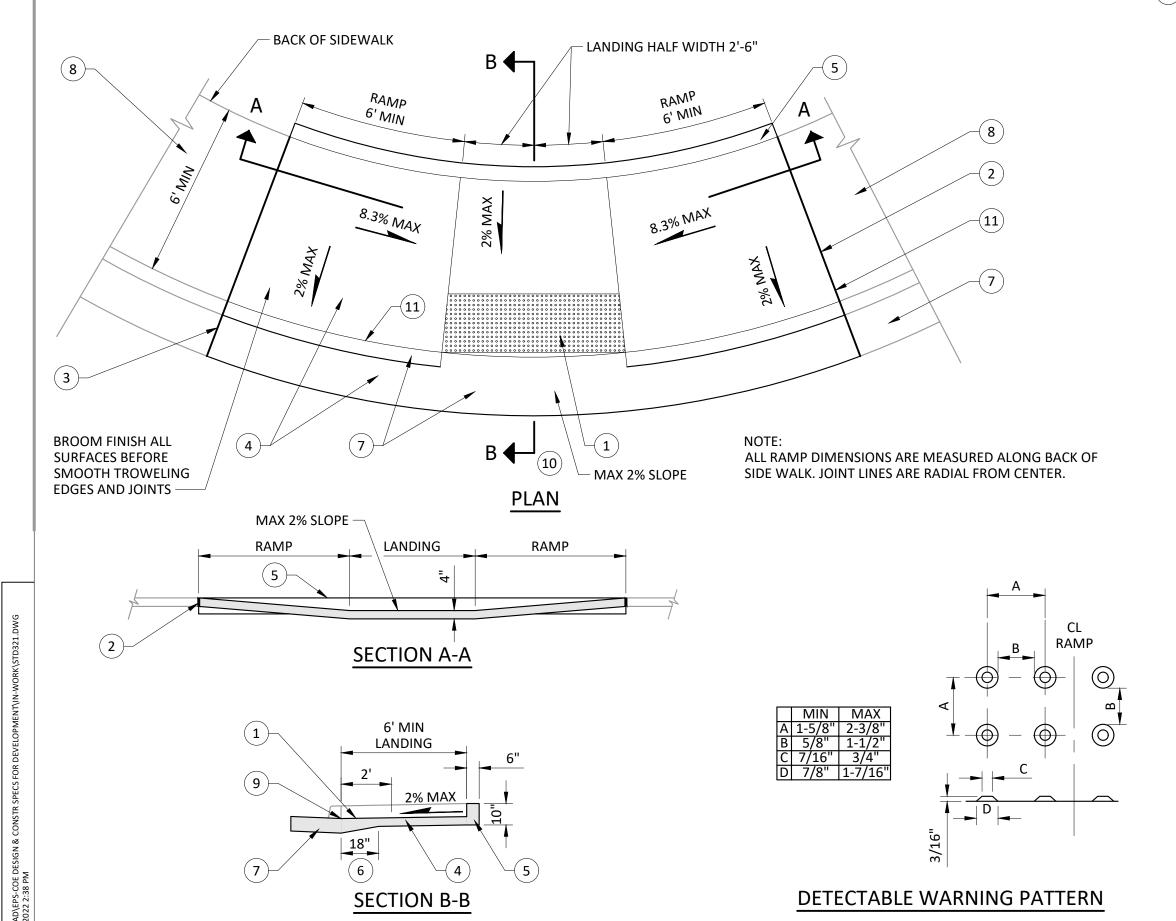


TYPE E-4 CURB



TYPES E-1, E-2, E-3 & E-4

**CEMENT CONCRETE CURB & GUTTER** 



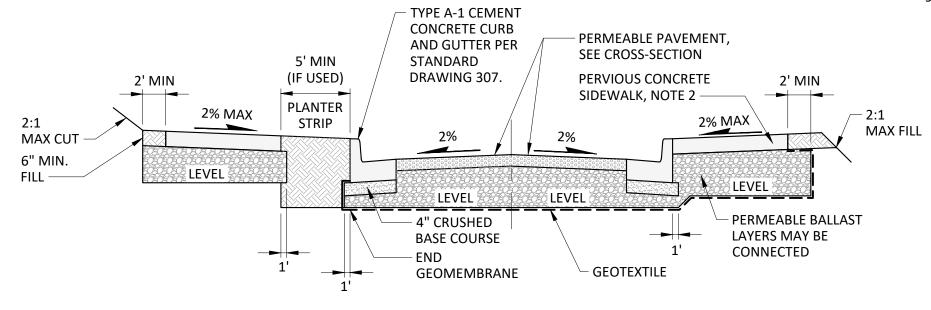
#### (#) NOTES

- 1. DETECTABLE WARNING PATTERN AREA SHALL BE YELLOW IN COMPLIANCE WITH WSDOT/APWA STANDARD SPECIFICATION SECTION 8-14.3(3).
- CURB RAMPS SHALL BE ISOLATED FROM ADJACENT SIDEWALK BY A 3/8" FULL DEPTH EXPANSION JOINT.
- 3. GUTTER SECTION AT CURB RAMP SHALL BE ISOLATED FROM ADJACENT GUTTER SECTIONS BY A 3/8" FULL DEPTH EXPANSION JOINT.
- 4. CURB RAMP AND GUTTER SECTION AT CURB RAMP MAY BE POURED MONOLITHICALLY.
- 5. 6"W X 10"H X 17'/18'L POURED IN PLACE CONCRETE CURB INTEGRAL WITH RAMP.
- 6. THICKEN EDGE TO FULL DEPTH OF ADJACENT CURB SECTION.
- 7. TYPE A-1 CURB AND GUTTER PER CITY STANDARD DRAWING 307.
- 8. FOR RETROFIT INSTALLATION SAWCUT AND REMOVE EXISTING SIDEWALK TO FIRST EXISTING JOINT EITHER SIDE OF NEW RAMP. SAWCUT AND REMOVE EXISTING CURB AND GUTTER SECTION AS REQUIRED. SAWCUT EXISTING PAVEMENT AS REQUIRED FOR FORMING OF NEW CURB AND GUTTER. PATCH PAVEMENT AS REQUIRED.
- 9. FLUSH WITH GUTTER (NO LIP PERMITTED).
- 10. A MIN OF 4' CLEAR SPACE, WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE, SHALL BE PROVIDED WITHIN THE WIDTH OF THE CROSSWALK OR PEDESTRIAN STREET CROSSING SERVED BY THE RAMP.
- 11. ALL JOINTS SHALL BE CLEANED AND EDGED WITH AN EDGER HAVING A 3/8" RADIUS AFTER FINAL BROOM FINISH IS COMPLETED.



TYPE D CURB RAMP

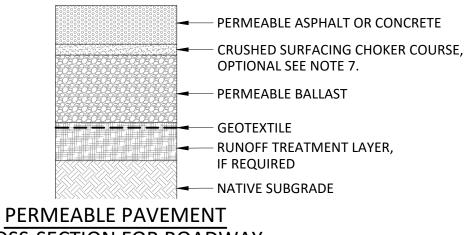
#### PERMEABLE ROADWAY WITH IMPERVIOUS SIDEWALKS



## PERMEABLE ROADWAY WITH PERVIOUS SIDEWALKS

## **NOTES**

- 1. SEE STANDARD DRAWINGS 302 AND 312 FOR TYPICAL SIDEWALK ADJACENT TO ROADWAY. SEE STANDARD DRAWING 303 FOR ROADWAY WITH NO SIDEWALK.
- 2. SEE STANDARD DRAWING 346 FOR SIDEWALK PERMEABLE PAVEMENT CROSS-SECTION AND NOTES.
- 3. GEOMEMBRANE BARRIER SHALL PROVIDE AN IMPERMEABLE BARRIER BETWEEN STANDARD AND PERMEABLE SECTION, WHERE APPLICABLE. GEOMEMBRANE MAY ALSO BE REQUIRED AT THE SHOULDER SIDE OF THE ROAD. IT SHALL BE INSTALLED 6" BELOW FINISHED GRADE OF SURFACING. ALTERNATIVELY, THE LINER SHALL FOLD OVER THE PERMEABLE BALLAST A MINIMUM OF 6". GEOMEMBRANE BARRIER SEAMS SHALL OVERLAP AT LEAST 18" OR PER MANUFACTURER'S RECOMMENDATIONS. GEOMEMBRANE BARRIER SHALL EXTEND THE LENGTH OF THE PERMEABLE SECTION WHEN ADJACENT TO STANDARD PAVEMENT.
- 4. GEOTEXTILE TO BE PROVIDED WHEN RECOMMENDED BY GEOTECHNICAL PROFESSIONAL.
- 5. PERMEABLE BALLAST MAY BE EXTENDED UNDER CURB AND SIDEWALK WHEN APPROVED BY THE CITY ENGINEER.
- SEE STANDARD DRAWING 431 FOR PERMEABLE PAVEMENT ON SLOPES.
- 7. PERMEABLE BALLAST HAS HIGH VOID CONTENT WHICH MAY CAUSE DISPLACEMENT OF THE AGGREGATE SURFACE UNDER LOAD. CRUSHED SURFACING CHOKER COURSE MAY BE USED TO MINIMIZE THE DISPLACEMENT.
- 8. PERMEABLE PAVEMENT TO BE DESIGNED BY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF WASHINGTON PER AASHTO REQUIREMENTS.
- PERMEABLE ROADWAY ONLY ALLOWED WHEN APPROVED BY THE CITY ENGINEER, IN AREAS WITH 400 ADT OR LESS, AND IN AREAS WITH LOW TRUCK TRAFFIC.



CROSS-SECTION FOR ROADWAY
SEE NOTE 8 - THICKNESSES TO BE DESIGNED BY ENGINEER



PUBLIC WORKS DEPARTMENT

y Engineer Section Manager DAN ENRICO PAUL WILHELM BRIAN DEFREESE TYPICAL ROADWAY SECTION

TYPICAL ROADWAY SECTION

TYPICAL ROADWAY SECTION

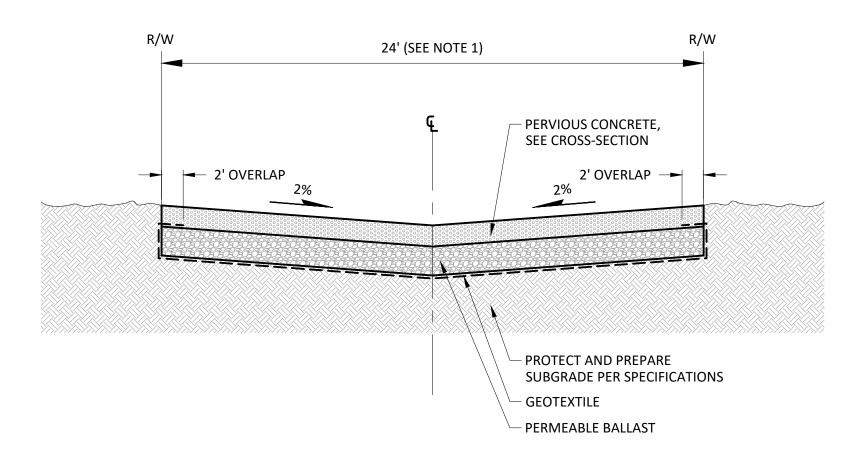
PERMEABLE PAVEMENT

344

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# PERMEABLE PAVEMENT **CROSS-SECTION FOR ALLEY**

SEE NOTE 9 - THICKNESSES TO BE DESIGNED BY ENGINEER



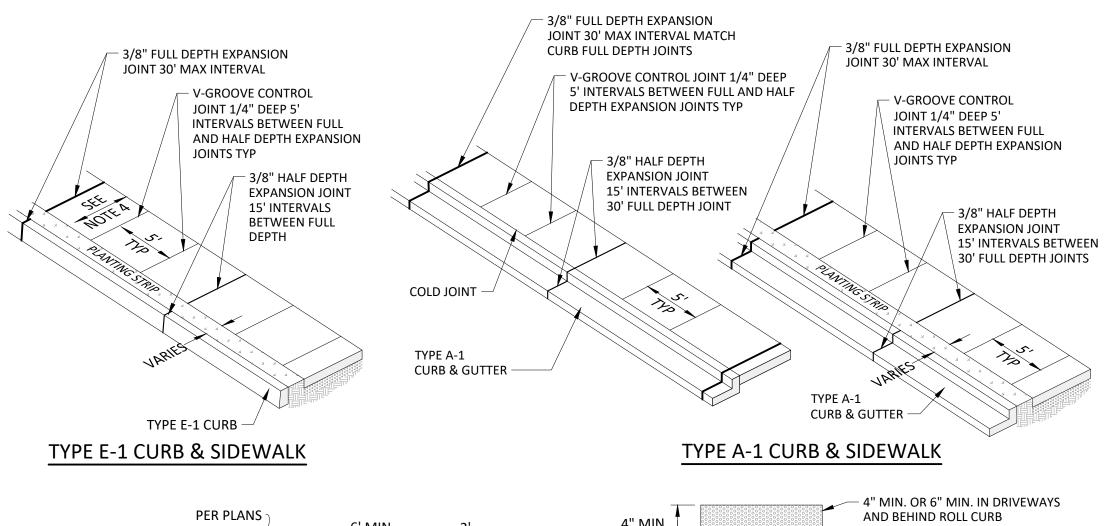
# **NOTES**

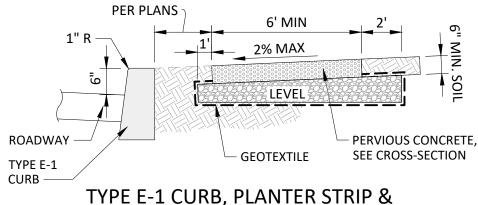
- 1. ALL NEW ALLEYS SHALL HAVE A MINIMUM WIDTH OF 24'. EXISTING ALLEY RIGHT-OF-WAYS MAY VARY FROM 12' TO 24'.
- 2. OVERFLOW DRAINAGE TO BE COLLECTED AT LOW END OF IMPROVED SECTION WITH CATCH BASIN CONNECTED TO DRAINAGE SYSTEM.
- GEOMEMBRANE BARRIER SHALL PROVIDE AN IMPERMEABLE BARRIER BETWEEN STANDARD AND PERMEABLE SECTION, WHERE APPLICABLE. GEOMEMBRANE MAY ALSO BE REQUIRED AT THE SHOULDER SIDE OF THE ROAD. IT SHALL BE INSTALLED 6" BELOW FINISHED GRADE OF SURFACING. ALTERNATIVELY, THE LINER SHALL FOLD OVER THE PERMEABLE BALLAST A MINIMUM OF 6". GEOMEMBRANE BARRIER SEAMS SHALL OVERLAP AT LEAST 18" OR PER MANUFACTURER'S RECOMMENDATIONS. GEOMEMBRANE BARRIER SHALL EXTEND THE LENGTH OF THE PERMEABLE SECTION WHEN ADJACENT TO STANDARD PAVEMENT.
- 4. GEOTEXTILE TO BE PROVIDED WHEN RECOMMENDED BY GEOTECHNICAL PROFESSIONAL.
- 5. SEE STANDARD DRAWING 431 FOR PERMEABLE PAVEMENT ON SLOPES GREATER THAN 2%.
- 6. FOR PERVIOUS CONCRETE ALLEYS, CONTRACTION JOINTS MUST NOT EXCEED 12' FOR PAVEMENT THICKNESS OF 9" OR LESS. FOR THICKER PAVEMENT, CONTRACTION JOINTS MAY BE 15'.
- 7. ADJUSTMENT OF CATCH BASIN LIDS OR GRATES, MONUMENT CASES, VALVE BOXES, ETC SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR DEVELOPER AS REQUIRED.
- PERMEABLE BALLAST HAS HIGH VOID CONTENT WHICH MAY CAUSE DISPLACEMENT OF THE AGGREGATE SURFACE UNDER LOAD. CRUSHED SURFACING CHOKER COURSE MAY BE USED TO MINIMIZE THE DISPLACEMENT.
- PERMEABLE PAVEMENT TO BE DESIGNED BY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF WASHINGTON PER AASHTO REQUIREMENTS.
- 10. PERMEABLE ALLEYS ONLY ALLOWED WHEN APPROVED BY THE CITY ENGINEER, IN AREAS WITH 400 ADT OR LESS, AND IN AREAS WITH LOW TRUCK TRAFFIC.



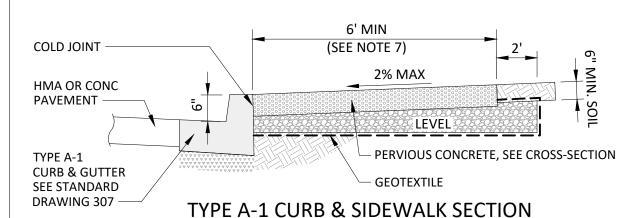
**PUBLIC WORKS DEPARTMENT** 

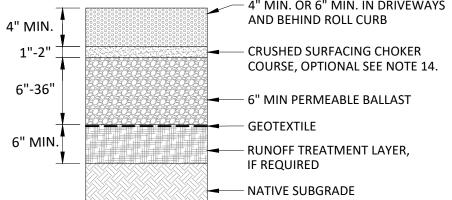
ity Engineer Section Manager DAN ENRICO Section Manager PAUL WILHELM BRIAN DEFREESE 10/04/2022



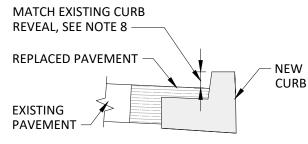


SIDEWALK SECTION





# PERVIOUS CONCRETE CROSS-SECTION FOR SIDEWALK



REPLACEMENT CURB DETAIL

# NOTES

- 1. SIDEWALK FULL DEPTH EXPANSION JOINTS SHALL GENERALLY BE PLACED TO MATCH THOSE IN ADJACENT CURB & GUTTER (WITHOUT PLANTER STRIP). MAXIMUM SPACING OF 30 FEET, FINAL SPACING DETERMINATION SHALL BE DECIDED BY THE INSPECTOR IN THE FIELD.
- 2. GEOMEMBRANE BARRIER SHALL PROVIDE AN IMPERMEABLE BARRIER BETWEEN STANDARD AND PERMEABLE SECTION, WHERE APPLICABLE. GEOMEMBRANE MAY ALSO BE REQUIRED AT THE SHOULDER SIDE OF THE ROAD. IT SHALL BE INSTALLED 6" BELOW FINISHED GRADE OF SURFACING. ALTERNATIVELY, THE LINER SHALL FOLD OVER THE PERMEABLE BALLAST A MINIMUM OF 6". GEOMEMBRANE BARRIER SEAMS SHALL OVERLAP AT LEAST 18" OR PER MANUFACTURER'S RECOMMENDATIONS. GEOMEMBRANE BARRIER SHALL EXTEND THE LENGTH OF THE PERMEABLE SECTION WHEN ADJACENT TO STANDARD PAVEMENT.
- GEOTEXTILE TO BE PROVIDED WHEN RECOMMENDED BY GEOTECHNICAL PROFESSIONAL.
- SIDEWALKS ARE 6' MIN WIDE OR AS APPROVED BY THE CITY ENGINEER.
- 5. SEE STANDARD DRAWING 431 FOR PERMEABLE PAVEMENT ON SLOPES GREATER THAN 2%.
- 6. ALL JOINTS SHALL BE CLEANED AND EDGED WITH AN EDGER HAVING A 3/8" RADIUS.
- 7. FOR REPLACEMENT PROJECTS, CURB REVEAL SHALL MATCH EXISTING REVEAL, WHICH MAY BE LESS THAN THE STANDARD 6". NEW CURB SHALL MATCH DIMENSIONS AS SHOWN IN STANDARD DRAWINGS 307-309.
- WHEN PLACING WALK ADJACENT TO EXISTING CURB AND GUTTER, CURB AND GUTTER WILL BE REPAIRED AS NECESSARY BEFORE PLACING CONCRETE FORMS FOR WALK.
- ). STAKING IS REQUIRED WHERE NO CURB IS PRESENT.
- 10. ALL PERVIOUS SURFACES SHALL BE VACUUMED IMMEDIATELY AFTER COMPLETION OF SAWCUTTING TO PREVENT CLOGGING.
- 11. WHERE NEEDED, ADJUST BALLAST IN PLANTING STRIP TO ACCOMMODATE PLANTS. KEEP PERMEABLE BALLAST A MINIMUM OF 2' FROM TREES.
- 12. FOR BALLAST DEEPER THAN CURB, PROVIDE A GEOMEMBRANE BARRIER BETWEEN PERMEABLE BALLAST AND ROAD SECTION UNLESS ADJACENT ROAD IS PERMEABLE.
- 13. SIDEWALK PANELS BETWEEN DRIVEWAY AND DRIVEWAY RAMP WITHIN THE TYPICAL VEHICLE PATH SHALL NOT BE PERVIOUS. EXTEND PERVIOUS BASE COURSE UNDER IMPERVIOUS SURFACE TO ACCOUNT FOR SETTLING.
- 14. PERMEABLE BALLAST HAS HIGH VOID CONTENT WHICH MAY CAUSE DISPLACEMENT OF THE AGGREGATE SURFACE UNDER LOAD. CRUSHED SURFACING CHOKER COURSE MAY BE USED TO MINIMIZE THE DISPLACEMENT.
- 15. PERMEABLE SIDEWALK ONLY ALLOWED WHEN APPROVED BY THE CITY ENGINEER.

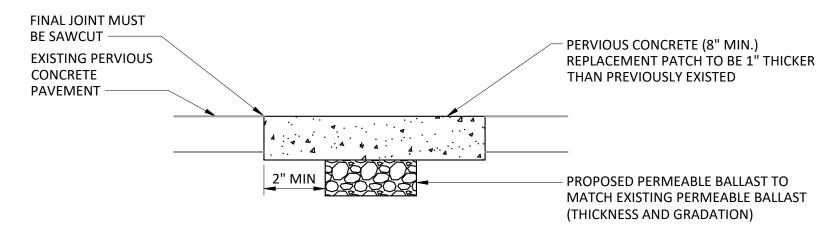


PERVIOUS CONCRETE
SIDEWALK DETAILS

346

DESIGN & CONSTR SPECS FOR DEVELOPMENT\IN-WORK\STD346.DWG

## EXISTING PERMEABLE ASPHALT OVER PREPARED GRADE



# EXISTING PERVIOUS CONCRETE OVER PREPARED GRADE

## **NOTES**

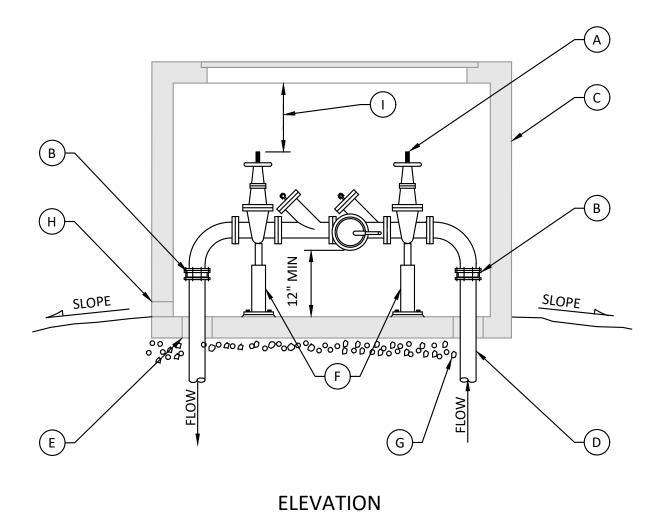
- 1. ALL TRENCHES IN ROADWAY AREAS SHALL BE BACKFILLED AND PATCHED WITH TEMPORARY ASPHALT AT THE END OF EACH WORK DAY, UNLESS PERMISSION IS GRANTED TO DO OTHERWISE BY THE CITY ENGINEER.
- 2. ALL TEMPORARY PATCHES ON TRENCHES SHALL BE PERMANENTLY PATCHED WITHIN 2 WEEKS OF COMPLETION OF WORK WITHIN ROADWAY AREA.
- 3. ALL PERVIOUS SURFACES SHALL BE VACUUMED IMMEDIATELY AFTER COMPLETION OF SAWCUTTING TO PREVENT CLOGGING.
- 4. PERMEABLE ASPHALT OR PERVIOUS CONCRETE PAVEMENT MIX SHALL BE APPROVED IN WRITING BY THE CITY OF EVERETT.
- 5. WHERE GEOTEXTILE FABRIC OR GEOMEMBRANE LINER EXISTS UNDER THE PERMEABLE BALLAST, REPLACE WITH SAME MATERIAL. ADDITIONAL WIDTH OF EXCAVATION MAY BE NECESSARY TO OVERLAY FABRIC OR LINER. WHERE A LINER IS USED TO CREATE A WATERTIGHT BARRIER, REPAIR PER MANUFACTURER'S SPECIFICATIONS TO MAINTAIN A WATERTIGHT BARRIER.



**PUBLIC WORKS DEPARTMENT** 

ity Engineer TOM HOOD Section Manager PAUL WILHELM Drawn By BRIAN DEFREESE 10/05/2022

PERMEABLE PAVEMENT PATCHING DETAIL



## **NOTES**

- 1. TEE AND GATE VALVE REQUIRED ON MAIN.
- 2. ALL TEST COCKS MUST HAVE BRASS PLUGS.
- 3. MAXIMUM HEIGHT OF ASSEMBLY IS FIVE FEET UNLESS AN OSHA APPROVED PLATFORM IS PROVIDED.
- 4. MINIMUM INSIDE VAULT HEIGHT IS 78", OR AS APPROVED BY THE CITY UTILITIES DEPARTMENT.
- 5. MAXIMUM HEIGHT OF ASSEMBLY FROM FLOOR IS FIVE FEET UNLESS AN OSHA APPROVED PLATFORM IS PROVIDED.
- 6. ALL DIMENSIONS ARE MINIMUM CLEARANCE REQUIREMENTS.
- 7. ASSEMBLY REQUIRES CERTIFICATION UPON INSTALLATION AND RECERTIFICATION ANNUALLY BY OWNER.

## **PARTS**

- A. UL-FM LISTED SOFTSEATED WA STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY INCLUDING: 2-0.S.& Y RESILIENT SEATED GATE VALVES, AND TEST COCKS.
- B. UNI-FLANGE WITH SET SCREWS OR MJ x FL ADAPTOR WITH MEGALUG OR GALVANIZED SHACKLE TO MAIN WITH 2-3/4" RODS, OR MJ RETAINER GLANDS.
- C. HOT BOX OR APPROVED EQUAL. DEVICE CAN BE INSIDE BUILDING WITH PROPER DRAIN IN FLOOR AND WITH PRIOR APPROVAL.
- DUCTILE IRON PIPE (SIZED AS REQUIRED) CLASS 52.
- WATER TIGHT GROUT SHALL BE USED IN ALL VAULT PENETRATIONS.
- F. 2 GALVANIZED ADJUSTABLE PIPE SUPPORTS FOR 2 1/2" DIA AND LARGER PIPE.
- GRAVEL FOUNDATION AS REQUIRED.
- H. DRAIN SHALL BE INSTALLED WITH APPROVED AIR GAP (SEE STD 519) AND BE ABLE TO BE BORE SIGHTED TO DAYLIGHT WHICH MUST BE ABOVE 100 YEAR FLOOD LEVEL. DRAIN WILL BE SIZED SO AS TO PROVIDE FREE GRAVITY DRAINAGE OF MAX DISCHARGE OF RELIEF VALVE PORT.
- I. 3" MIN CLEARANCE FROM UNDERSIDE OF VAULT LID TO STEM OF OS&Y WHEN FULLY OPEN.



**PUBLIC WORKS DEPARTMENT** 

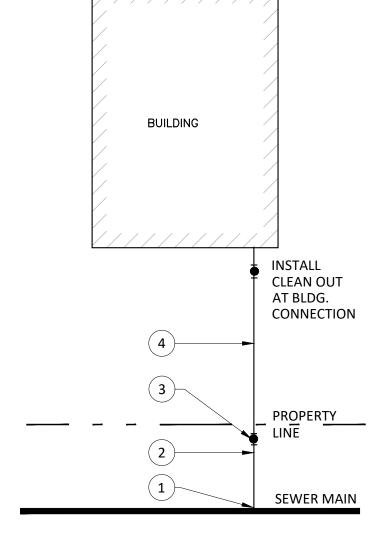
ty Engineer Section Manager PAUL WILHELM Drawn By
RYAN SASS R. HEFTI PAUL WILHELM WRB

11/21/2022

REDUCED PRESSURE **BACKFLOW ASSEMBLY** (RPBA) ALL SIZES

LAYOUT 'A'

5' MAXIMUM IF



LAYOUT 'B'

## NOTES

- CONNECTION TO SEWER MAIN PER SECTION 7 OF STANDARD SPECIFICATIONS FOR ROADS; BRIDGE AND MUNICIPAL CONSTRUCTION WSDOT/APWA, CITY SPECIAL PROVISIONS, AND STANDARD DRAWING 602.
- 2. INSTALL 6" MINIMUM PIPE SIZE IN RIGHT OF WAY.
- 3. INSTALL 6" CLEAN OUT PER STANDARD. DRAWING 604.
- 4. PRIVATE SIDE SEWER PIPE DIAMETER: 4" MINIMUM FOR SINGLE FAMILY 6" MINIMUM FOR ALL OTHER USES.

## **GENERAL NOTES**

- 1. SEE SECTION 7 OF STANDARD
  SPECIFICATIONS FOR ROADS; BRIDGE AND
  MUNICIPAL CONSTRUCTION WSDOT/APWA
  AND CITY SPECIAL PROVISIONS SECTION
  7-18 FOR DETAILS AND REQUIREMENTS ON
  LATERALS.
- 2. ALL CLEAN OUT'S ON PRIVATE PROPERTY ARE TO BE ADJUSTED TO GRADE IF IN PAVED AREAS PER STANDARD DRAWING 604.
- 3. CLEAN OUT'S ARE TO BE CONSTRUCTED WITH WYES OR SANITARY "T"S (SWEEPS). STRAIGHT "T"S ARE NOT PERMITTED.
- 4. ALLOWABLE GRADES ARE 2% (1/4"/FT) MINIMUM TO 100% (FT/FT) MAXIMUM.
- 5. SEWER MUST BE STRAIGHT BETWEEN ANGLE POINTS, CHANGES IN LINE OR GRADE SHALL BE MADE WITH APPROVED FITTINGS.
- NORMALLY ONLY ONE(1) CONNECTION TO THE SEWER MAIN PER BUILDING IS ALLOWED. TWO (2) DIFFERENT LAYOUTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.



PUBLIC WORKS DEPARTMENT

ty Engineer Section Manager CAD Manager TOM HOOD AMIE ROSHAK PAUL WILHELM PCW

TIE

12/30/2022

TYPICAL SIDE SEWER LAYOUTS